

Fig. 1A

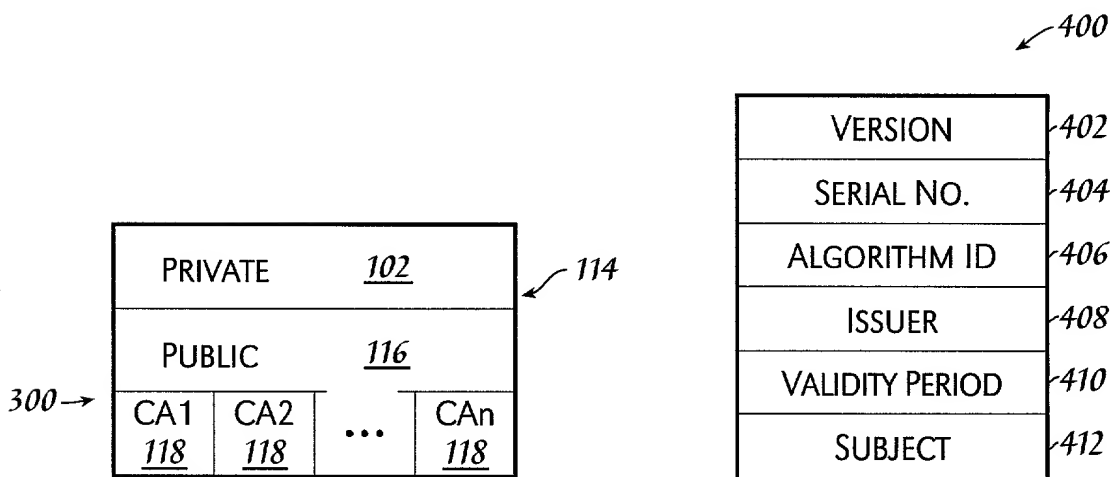


Fig. 1B

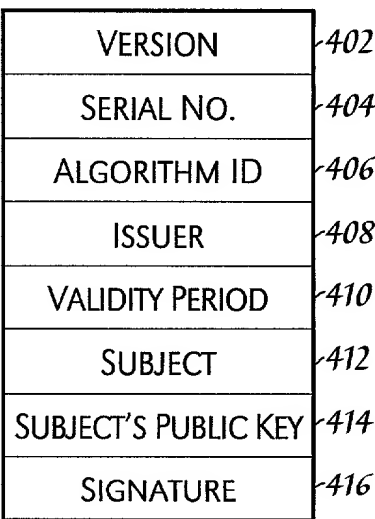


Fig. 4

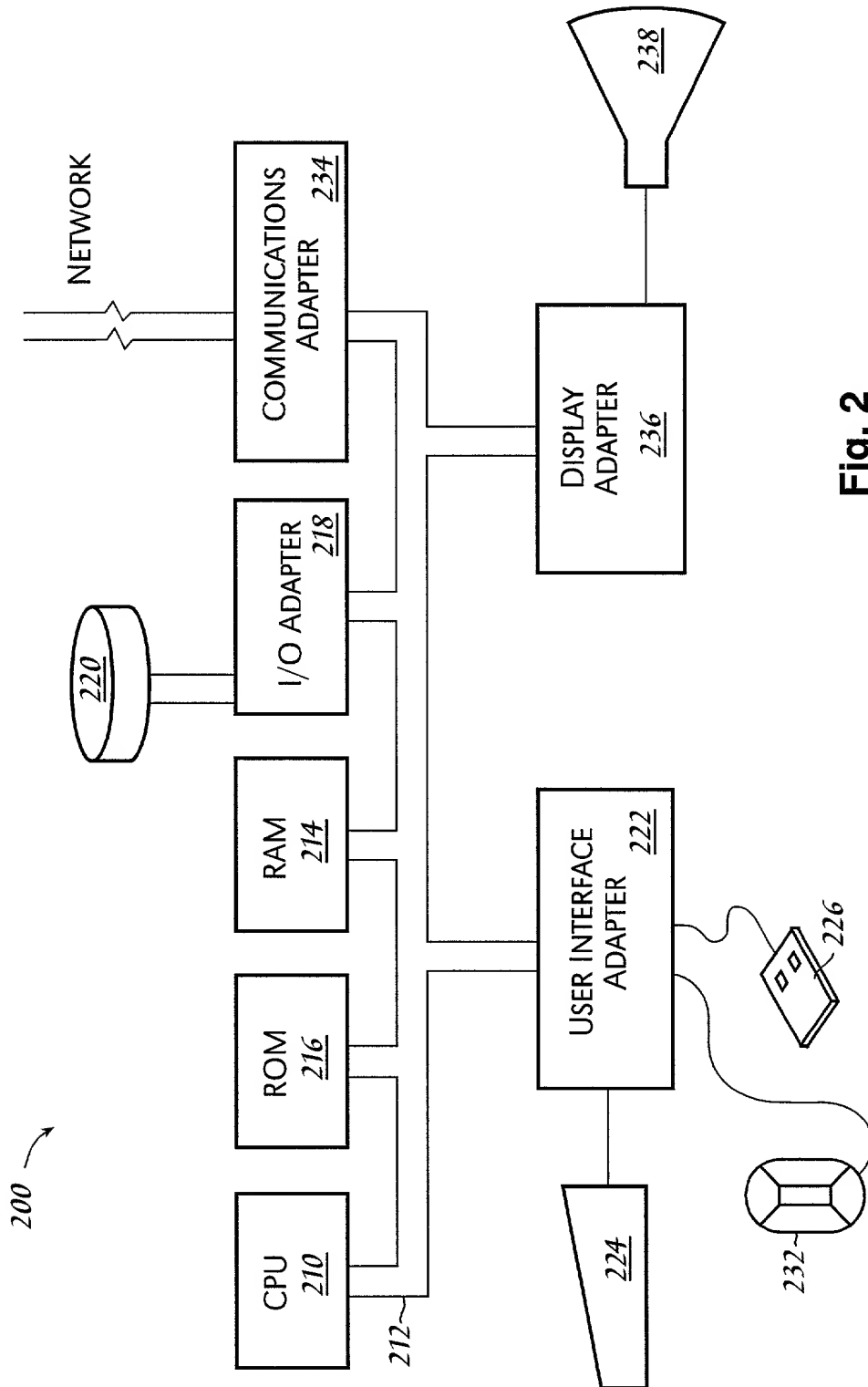


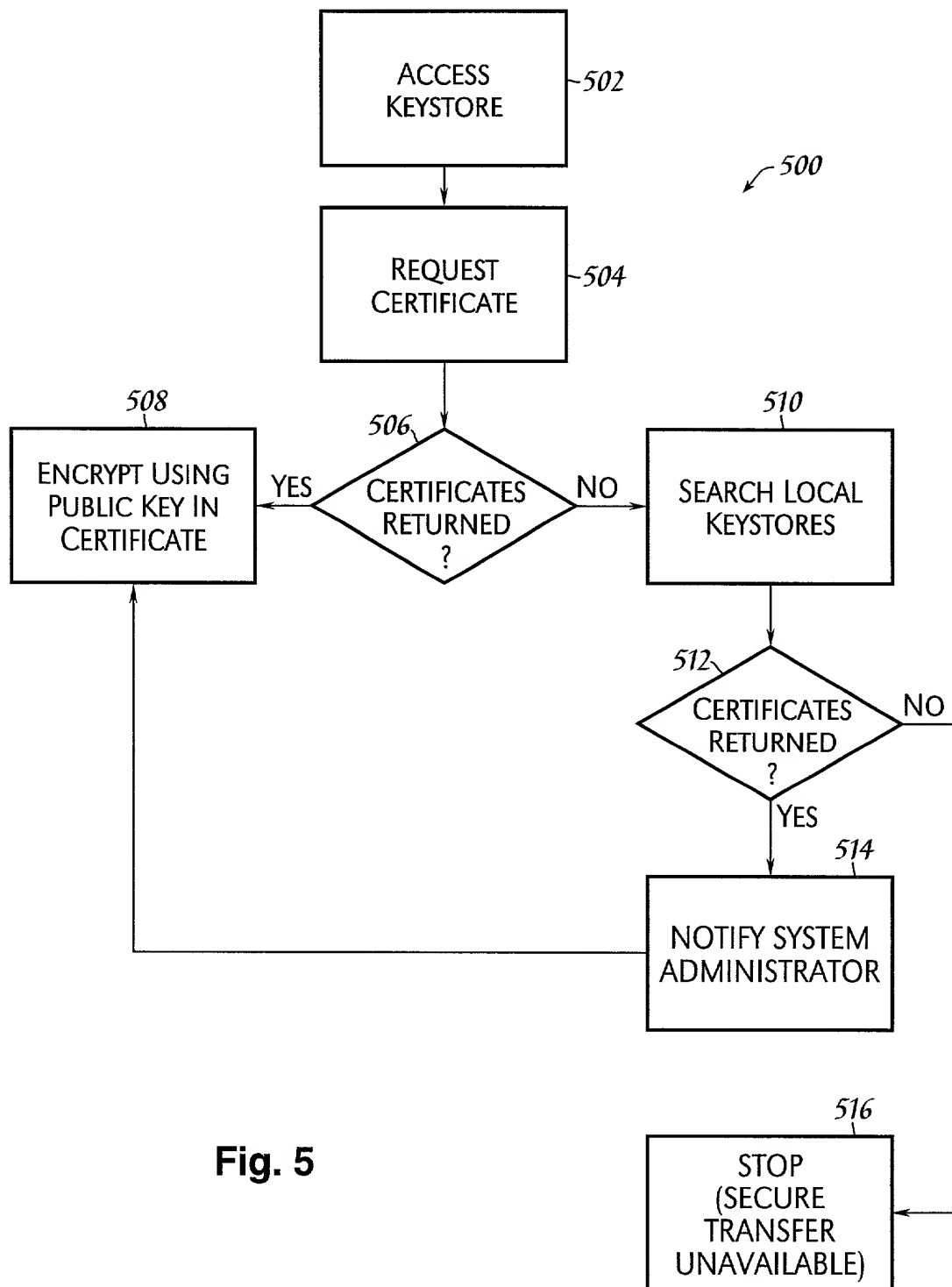
Fig. 2

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Fig. 3

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graph TD
    300[CREATE COMPOSITE KEYSTORES] --> 304[RETRIEVE CERTIFICATES FROM LOCAL KEYSTORE]
    304 --> 306{EXPIRED CERTIFICATES?}
    306 -- YES --> 308[LIST EXPIRED CERTIFICATES]
    306 -- NO --> 310{MULTILEVEL?}
    308 --> 310
    310 -- YES --> 312[ADD NON-DUPPLICATIVE CERTIFICATES TO CORRESPONDING GROUP KEYSTORE]
    310 -- NO --> 314[ADD NON-DUPPLICATIVE CERTIFICATES TO KEYSTORE]
    312 --> 314
    314 --> 316{ALL USERS?}
    316 -- NO --> 304
    316 -- YES --> 318{EXPIRED CERTIFICATE LIST EMPTY?}
    318 -- YES --> 324{USER UPDATES PERMITTED?}
    318 -- NO --> 319{REFRESH?}
    324 -- YES --> 326[RECEIVE USER UPDATES]
    324 -- NO --> 328{UPDATE KEYSTORE?}
    326 --> 322[WHEN CERTIFICATE RETURNS ADD TO KEYSTORE]
    328 -- YES --> 322
    328 -- NO --> 332([STOP])
    319 -- YES --> 320[REQUEST NEW CERTIFICATE AND DELETE FROM LIST]
    319 -- NO --> 310
    320 --> 322
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The flowchart illustrates a certificate management process. It begins with 'CREATE COMPOSITE KEYSTORES' (300), leading to 'RETRIEVE CERTIFICATES FROM LOCAL KEYSTORE' (304). A decision is made on 'EXPIRED CERTIFICATES?' (306). If YES, 'LIST EXPIRED CERTIFICATES' (308) is performed. If NO, or after listing expired certificates, a decision is made on 'MULTILEVEL?' (310). If YES, 'ADD NON-DUPPLICATIVE CERTIFICATES TO CORRESPONDING GROUP KEYSTORE' (312) is performed. If NO, or after adding to the group keystore, 'ADD NON-DUPPLICATIVE CERTIFICATES TO KEYSTORE' (314) is performed. A decision is then made on 'ALL USERS?' (316). If NO, the process loops back to 'RETRIEVE CERTIFICATES FROM LOCAL KEYSTORE' (304). If YES, a decision is made on 'EXPIRED CERTIFICATE LIST EMPTY?' (318). If YES, a decision is made on 'USER UPDATES PERMITTED?' (324). If YES, 'RECEIVE USER UPDATES' (326) is performed, leading to 'WHEN CERTIFICATE RETURNS ADD TO KEYSTORE' (322). If NO, a decision is made on 'UPDATE KEYSTORE?' (328). If YES, 'WHEN CERTIFICATE RETURNS ADD TO KEYSTORE' (322) is performed. If NO, the process loops back to 'MULTILEVEL?' (310). If 'EXPIRED CERTIFICATE LIST EMPTY?' (318) is NO, a decision is made on 'REFRESH?' (319). If YES, 'REQUEST NEW CERTIFICATE AND DELETE FROM LIST' (320) is performed, leading to 'WHEN CERTIFICATE RETURNS ADD TO KEYSTORE' (322). If NO, the process loops back to 'MULTILEVEL?' (310). The process ends at 'STOP' (332) if 'UPDATE KEYSTORE?' (328) is NO.



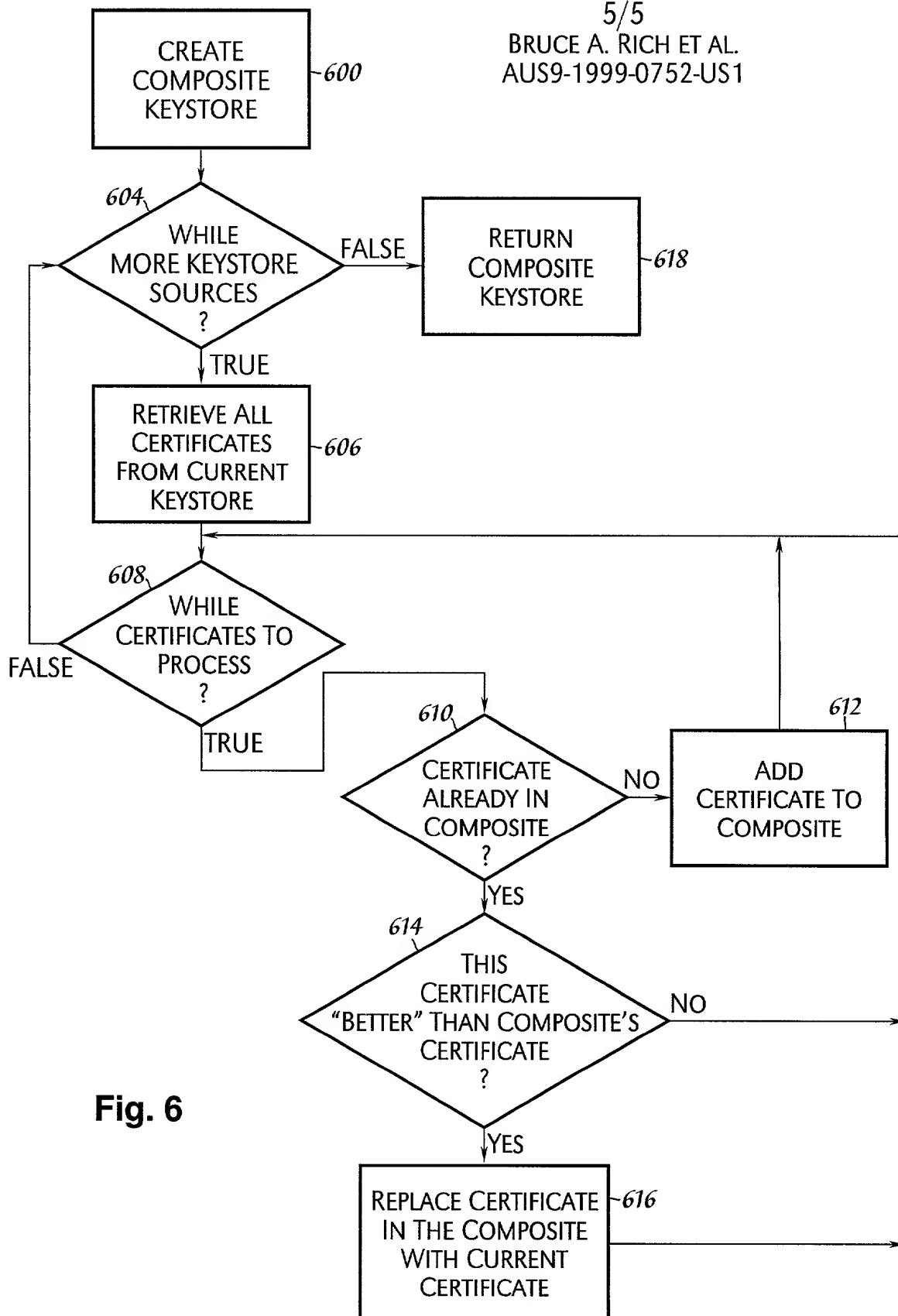


Fig. 6